

Rejection under 35 USC § 112, 2nd paragraph

Examiner has maintained the rejection of claims 1-7, 9 and 48 as indefinite. Applicant argues that the phrase “nutritionally significant concentration of Se-methylselenocysteine” is definite and defined as a sufficient amount to deliver to a person a nutritionally significant amount per plant amount. Furthermore, Applicant argues that while the final concentration of Se-methylselenocysteine in the crop does depend upon the Se-accumulating ability of the crop and the Se-methylselenocysteine content in the growth environment, the present invention is complete as soon as it accumulates a nutritionally significant amount. Therefore the term “significant” as recited in the claims is not open to various interpretations, and one skilled in the art would know what level of Se-methylselenocysteine constitutes nutritionally “significant.” However, in order to expedite prosecution, the Applicant has cancelled all claims reciting the term “significant” and reworded the claims to obviate the indefiniteness rejections.

Rejection under USC § 112

Examiner has maintained the rejection of claims 1-4, 9 and 48 as being anticipated by IP *et al.* Applicant has amended new claim 49 to recite the plant as a member of the Brassicaceae family. IP discloses a cultivation method of selenium-enriched garlic (*Allium sativum*). Applicant further argues that IP discloses garlic containing 150 ppm of selenium naturally occurring. The plant of the present invention is harvested after it has accumulated selenium in its edible portions to a concentration of at least about 400 ppm and the claims have been amended to reflect such concentration. Therefore, Applicant respectfully requests that the rejection of claims under 35 U.S.C. § 102(b) over IP *et al.* be withdrawn.

Examiner rejects claims 1-7, 9 and 48 as being anticipated by Stoewsand *et al.* Applicant argues that Stoewsand discloses a method of growing plants in which the plant accumulates selenium in its edible portions to a concentration lower than that of the selenium in the environment. The concentration of selenium in Stoewsand was diluted in the plant. However, the present invention discloses a method of growing plants in which the plant accumulates selenium in its edible portions to a concentration higher than that of the selenium in the environment.

Furthermore, Stoewsand discloses Brussels sprouts containing either 0.03, 0.58, 1.29, or 6.71 ppm of selenium naturally occurring in the sprouts. The plant of the present invention is

harvested after it has accumulated selenium in its edible portions to a concentration of at least about 400 ppm and the claims have been amended to reflect such concentration. Therefore, Applicant respectfully requests that the rejection of claims under 35 U.S.C. § 102(b) over Stoewsand *et al.* be withdrawn.

Double Patenting Rejection

Examiner has maintained the rejection of claims 1-7, 9 and 48 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 11-21 of the US Patent 6,117,462. Applicant respectfully traverses this rejection.

Applicant submits that a recitation of a genus does not render a species obvious to one of ordinary skill in the art. Patent '462 states that exemplary metals contemplated and claimed for use with that invention are iron, zinc, manganese, chromium, selenium, vanadium, molybdenum, boron, titanium and germanium. The first five are considered particularly advantageous, however '462 does not distinguish selenium from the rest of the claimed metals and indicates that any nutritionally valuable metal which can be caused to accumulate in the edible portions of a plant is suitable for the practice of the invention. Applicant submits that the present invention claims a species of the broadly claimed genus of '462. Specifically, Applicant claims a method of growing an edible plant in an environment containing selenium and harvesting said plant after it has accumulated selenium in its edible portions.

Applicant submits that the present invention describes several unexpected results with the species of selenium resulting in the present invention's method of accumulated selenium in edible plants. Therefore Applicant asserts the present invention would not have been obvious to one with ordinary skill in the art in light of '462. For example, the present invention contemplates nutritional supplements that are to be eaten by human beings. It is therefore important that the plants do not contain levels of metals, or of any other substances, that are toxic to humans. For this reason, nontoxic organic acids are preferred inducing agents in the current invention. Selenium, present in soil, can be converted to nontoxic seleno-amino acids such as selenocystein and selenomethionine. Specifically, selenium uptake into plant tissues is enhanced by expression of a gene (e.g., the selenocysteine methyl transferase gene) that increases the production of such non-toxic selenium metabolites within the plant.

Further, some metals provide increased benefits through a synergistic effect with other plant components. Selenium is an essential trace mineral for humans and animals and provides benefits including reduced cancer risk, reduced cardiovascular disease risk, improved immune system function, and increased resistance to viral infections. The present invention provides for a method of accumulating selenium in edible plant portions to be ingested by human beings, in which the portions ingested contain nutritionally significant levels shown to provide the benefits listed above yet remaining at non-toxic levels. Applicant therefore respectfully submits that '462 cannot support a rejection of the present claims and sincerely requests the removal of such rejection.

Based on the above, Applicant respectfully requests that the Examiner reconsider and withdraw all outstanding rejections and objections. Favorable consideration and allowance are earnestly solicited. Should there be any questions after reviewing this paper, the Examiner is invited to contact the undersigned at 617-248-5175.

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